

January 27 to February 2, 2013 (Week 05)

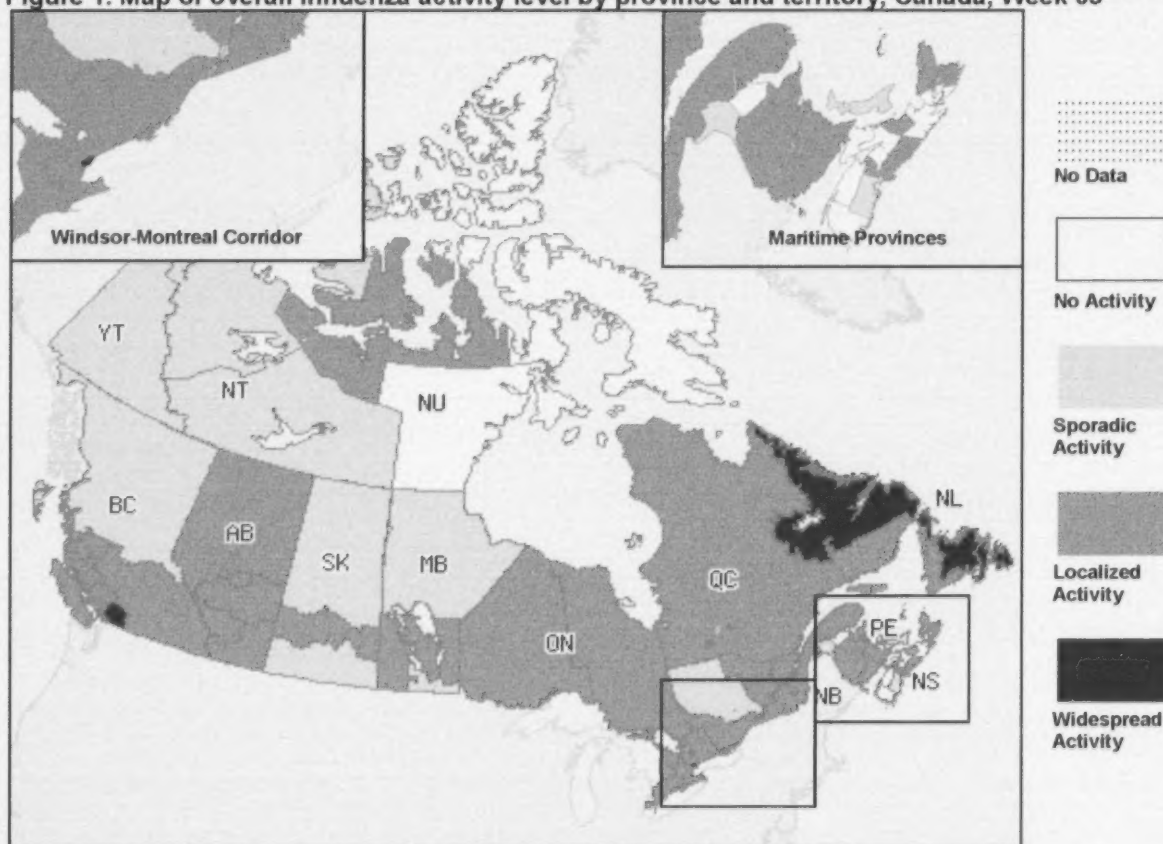
Overall Influenza Summary

- In week 05, the percentage of laboratory detections positive for influenza was similar to the previous week; the percentage of tests positive for RSV increased sharply.
- Many regions across Canada continue to report widespread and localized influenza activity and 99 new influenza outbreaks were reported.
- The ILI consultation rate increased and remains above the expected range for this time of year.
- The number of paediatric influenza-associated hospitalizations reported by the IMPACT network increased whereas the number of hospitalizations reported by the provinces and territories decreased.

Influenza Activity (geographic spread) and Outbreaks

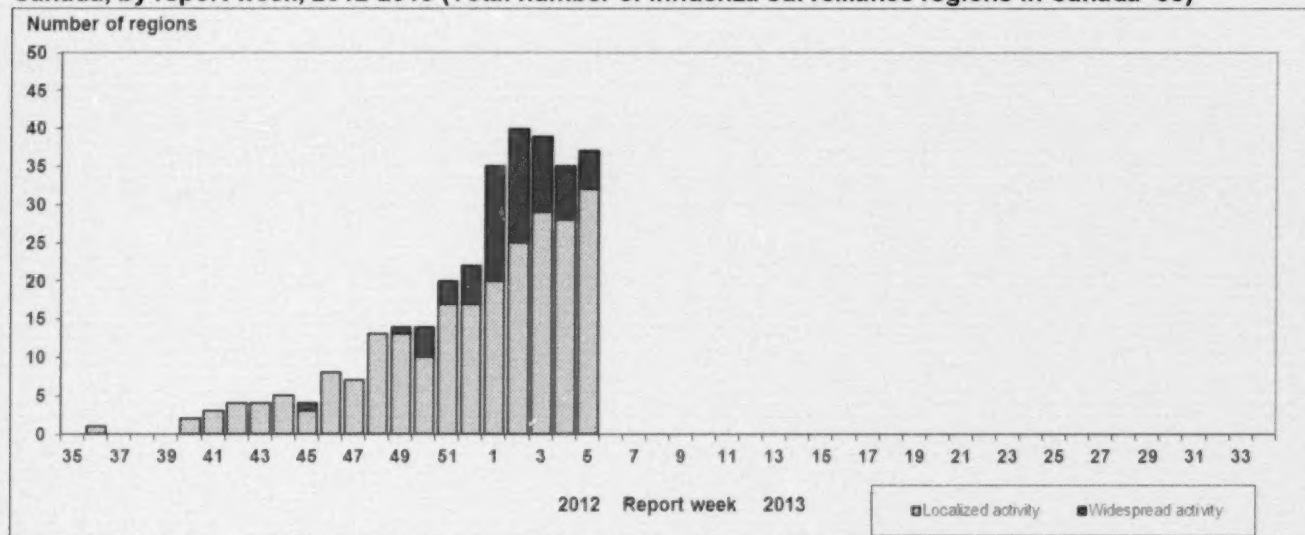
In week 05, 5 regions [in BC(1), ON(1) and NL(3)] reported widespread activity and 32 regions [in BC(3), AB(5), SK(1), MB(3), ON(6), QC(4), NB(5), NS(3), NL(1) and NU(1)] reported localized activity (Figures 1 and 2). In week 05, 99 new influenza outbreaks were reported: 30 in long-term-care facilities, 3 in hospitals, 41 in schools, and 25 in other facilities or communities (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 05



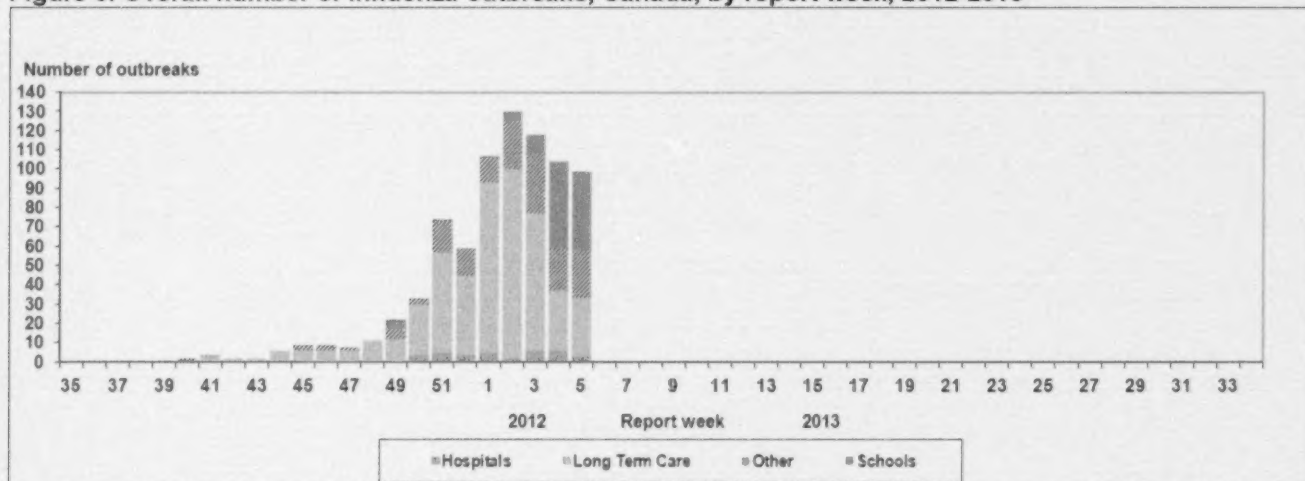
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013



Influenza and Other Respiratory Virus Detections

The percentage of positive influenza tests was stable at 22.4% in week 05 (Figure 4). Among the influenza viruses detected in week 05 (n=1,598), 94.6% were positive for influenza A viruses [of which 24.0% were A(H3), 5.8% were A(H1N1)pdm09, and 70.2% were A(unsubtyped)]; and 5.4% were positive for influenza B (Table 1). Cumulative influenza virus detections by type/subtype to date are as follows: 97.3% influenza A [34.8% A(H3), 2.5% A(H1N1)pdm09 and 62.7% A(unsubtyped)] and 2.7% influenza B (Table 1).

Detailed information on age and type/subtype was received for 18,114 cases to date this season (Table 2). The proportions of cases by age group were as follows: 13.1% were < 5 years; 7.6% were between 5-19 years; 15.1% were between 20-44 years; 16.5% were between 45-64 years of age; 47.8% were ≥ 65 years.

The percentage of tests positive for RSV increased sharply from 14.0% in week 04 to 17.2% in week 05. The percentage of tests positive for rhinovirus increased from 5.3% in week 04 to 6.4% in week 05. The percentage of tests positive for coronavirus also increased from 5.5% in week 04 to 5.9% in week 05. Other percentages of positive tests remained low, but also increased in week 05: parainfluenza 2.6%; adenovirus 1.3%; hMPV 1.6% (Figure 5). For more details, see the weekly [Respiratory Virus Detections in Canada Report](#).

Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013

Reporting provinces	Weekly (January 27 to February 2, 2013)						Cumulative (August 26, 2012 to February 2, 2013)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	255	0	135	23	97	10	1260	0	955	74	231	95
AB	99	0	44	25	30	17	2080	0	1688	249	143	146
SK	33	0	15	5	13	13	695	0	453	10	232	55
MB	67	0	3	1	63	5	499	0	75	3	421	34
ON	353	0	113	30	210	24	7155	0	3448	186	3521	136
QC	240	0	10	4	226	15	9087	0	537	20	8530	156
NB	310	0	0	0	310	1	1030	0	428	15	587	3
NS	51	0	43	0	8	0	120	0	67	0	53	2
PE	15	0	0	0	15	0	66	0	37	2	27	1
NL	88	0	0	0	88	2	527	0	152	0	375	4
Canada	1511	0	363	88	1060	87	22519	0	7840	559	14120	632

*Unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013*

Age groups	Weekly (January 27 to February 2, 2013)					Cumulative (Aug. 26, 2012 to February 2, 2013)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	101	5	17	79	8	2257	105	771	1381	108
5-19	59	2	4	53	11	1256	34	566	656	116
20-44	71	7	4	60	8	2633	155	1051	1427	98
45-64	96	12	13	71	7	2904	151	1040	1713	76
65+	214	3	50	161	5	8555	55	3201	5299	111
Unknown	3	1	2	0	0	148	11	135	2	0
Total	544	30	90	424	39	17753	511	6764	10478	509

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013

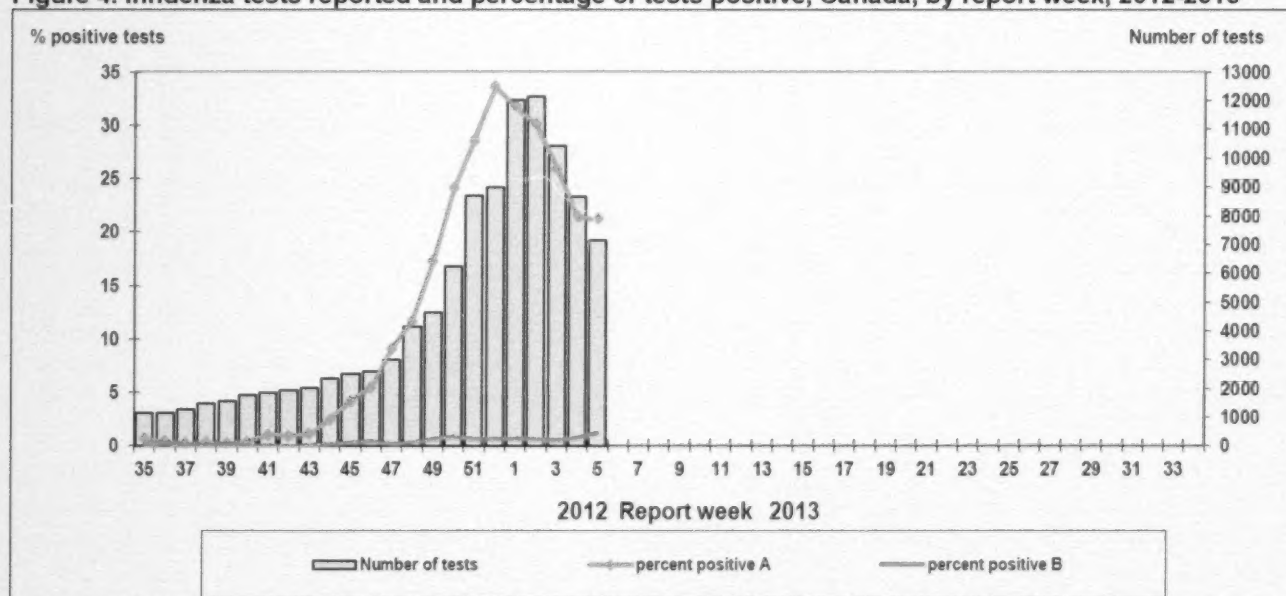
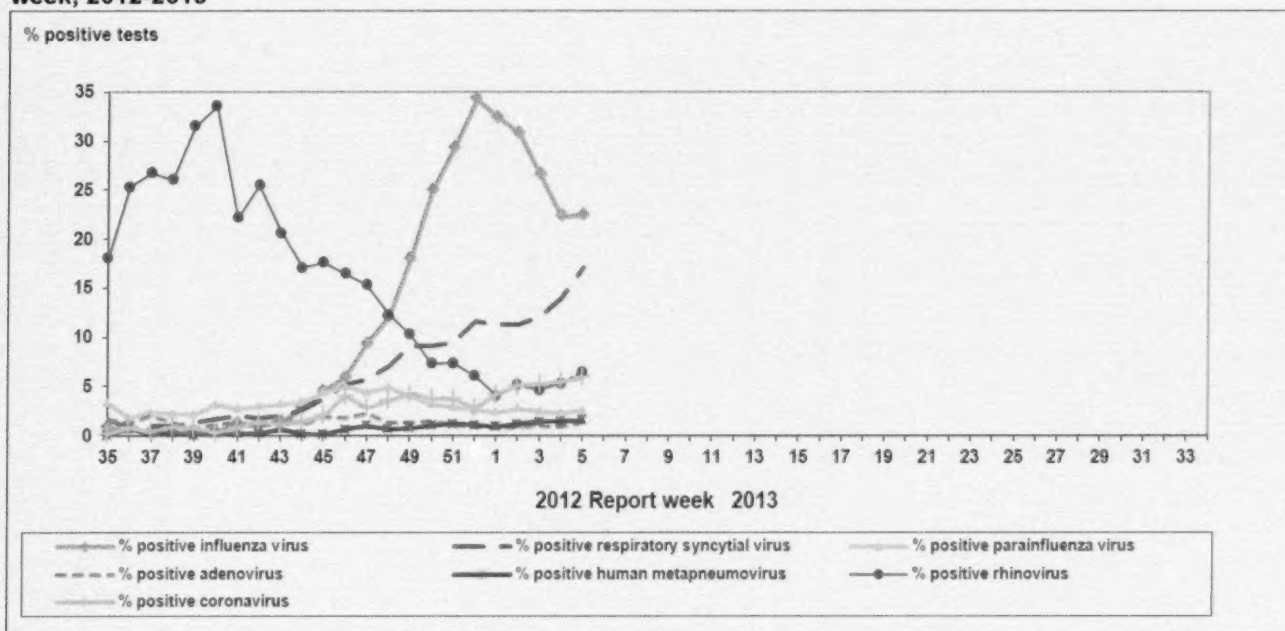


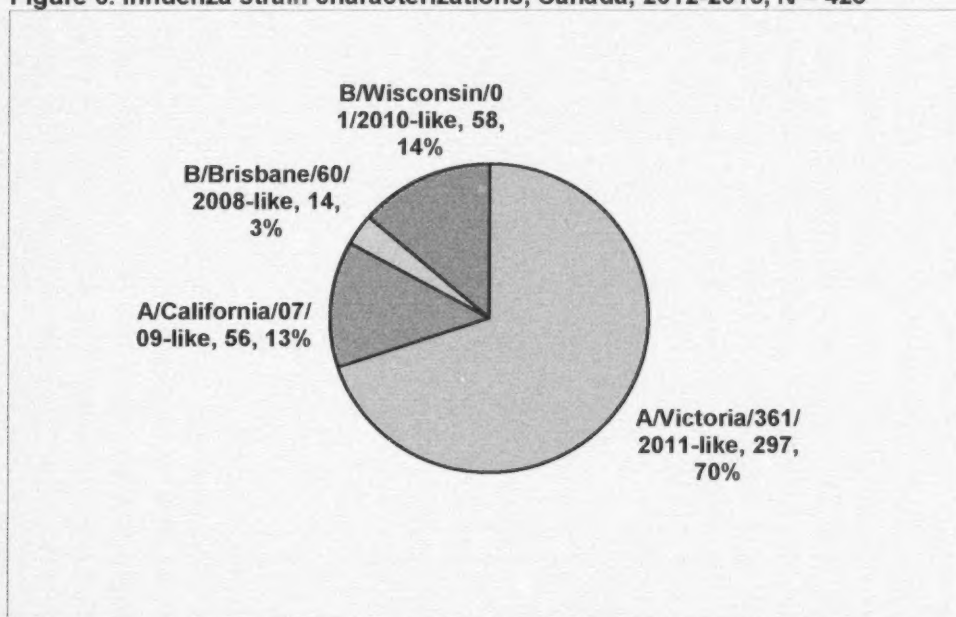
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

During the 2012-13 season, the National Microbiology Laboratory (NML) has antigenically characterized 425 influenza viruses [297 A(H3N2), 56 A(H1N1)pdm09, and 72 influenza B]. The 297 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011 and the 56 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 58 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and 14 were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 425



Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

Antiviral Resistance

During the 2012-13 season, NML has tested 397 influenza viruses for resistance to oseltamivir, and 396 influenza viruses for resistance to zanamivir. All viruses tested were sensitive to oseltamivir and zanamivir. A total of 545 influenza A viruses were tested for amantadine resistance and all were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013

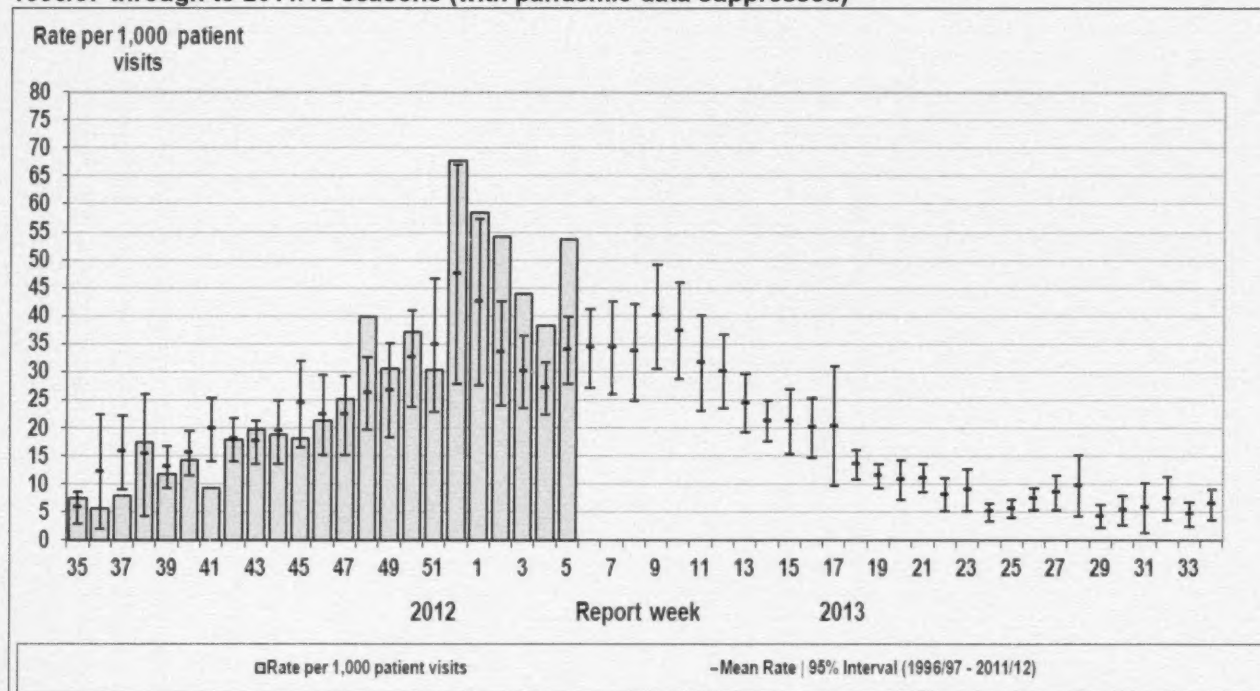
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	285	0	285	0	495	495 (100%)
A (H1N1)	52	0	51	0	50	50
B	60	0	60	0	NA*	NA*
TOTAL	397	0	396	0	545	545 (100%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate increased from 36.6 ILI consultations per 1,000 patient visits in week 04 to 53.7 in week 05. This rate remains above the expected level for this time of year (between 27.9 and 39.8 ILI consultations per 1,000 visits) for the sixth consecutive week (Figure 7). The elevated ILI consultation rate relative to the expected range for this time of year may be due to the continued circulation of influenza, combined with an increase in detections of RSV as well as other respiratory viruses across Canada. In week 05, the highest consultation rates were observed in children 5-19 years of age (89.6/1,000) followed by children <5 years of age (79.1/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Pharmacy Surveillance

The Canadian antiviral prescription rate decreased from 213.7 antiviral prescriptions per 100,000 new prescriptions dispensed in week 04 to 186.6 in week 05; which continues to follow the downward trend in the percentage of positive laboratory tests for influenza. In week 05, the antiviral prescription rate was stable for infants, and decreased for children and adults. The highest rate continued to be observed for seniors ≥ 65 years of age, which increased in week 05 to 480.4/100,000. The current rate of antiviral prescriptions of 186.6/100,000 is higher than that observed during the peak period of influenza activity last year (50-100/100,000).

Note: Pharmacy sales data are provided to the Public Health Agency of Canada by Rx Canada Inc. and sourced from major retail drug chains representing over 3,000 stores nationwide (excluding Nunavut) in 85% of Health Regions. Data provided include the number of new antiviral prescriptions (for Tamiflu and Relenza) and the total number of new prescriptions dispensed by Province/Territory and age group.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In week 05, 46 new laboratory-confirmed, influenza-associated paediatric (≤ 16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network, compared to 34 in week 04. Among the 37 cases identified with influenza A, 33 (89.2%) were A(untsubtyped), 2 (5.4%) were A(H3N2) and 2 (5.4%) were A(H1N1)pdm09. Nine cases (19.6%) were identified with influenza B. The age distribution is as follows: 9 cases (19.6%) under 6 months of age, 7 (15.2%) between 6-23 months, 16 (34.8%) 2-4 years of age, 8 (17.4%) 5-9 years of age, and 6 (13.0%) 10-16 years of age. Two ICU admissions were reported during this week: one in a child 6-23 months of age with influenza A(untsubtyped), the other in a child 5-9 years of age with influenza B.

Since the start of the 2012-13 season, a total of 542 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 515 (95.0%) with influenza A [of which 65 (12.6%) were A(H3N2), 10 (1.9%) were A(H1N1)pdm09 and 440 (85.4%) were A(untsubtyped)], and 27 (5.0%) with influenza B. The distribution of cases by age group is as follows: 115 (21.2%) < 6 months of age; 125 (23.1%) age 6-23 months; 163 (30.1%) age 2-4 years; 91 (16.8%) age 5-9 years; and 48 (8.9%) age 10-16 years. Forty-nine of the 542 cases (9.0%) were admitted to the ICU. No deaths have been reported to date.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada.

Adult Influenza Hospitalizations and Deaths (PCIRN)

In week 05, 49 new laboratory-confirmed, influenza-associated adult (≥ 16 years of age) hospitalizations were reported by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network, compared to 56 in week 04. The age distribution is as follows: 32 cases (65.3%) were ≥ 65 years of age, 12 cases (24.5%) were 45-64 years of age, 4 cases (8.2%) were 20-44 years of age, and 1 case (2.0%) was < 20 years of age. Forty-five cases identified with influenza A(untsubtyped), one case identified with influenza B, and three cases have yet to report the influenza type. Three ICU admissions were reported during the current week, all with influenza A(untsubtyped). Two of the ICU admissions were individuals ≥ 65 years of age, and the third was an individual 45-64 years of age. Four deaths were reported and all were identified with influenza A(untsubtyped). Three individuals were ≥ 65 years of age, and one was 45-64 years of age.

From November 4, 2012 to February 2, 2013, a total of 893 influenza-associated adult hospitalizations were reported by the PCIRN-SOS network: 847 (94.8%) with influenza A [of which 90 (10.6%) were A(H3N2), 5 (0.6%) were A(H1N1)pdm09, and 752 (88.8%) were A(untsubtyped)]; 18 (2.0%) with influenza B, and the type has not been reported for 28 (3.1%) cases. Among 892 cases with available data, the distribution of cases by age group is as follows: 609 cases (68.3%) were aged ≥ 65 years, 185 cases (20.7%) were aged 45-64 years, 94 cases (10.5%) were aged 20-44 years, and 4 cases (0.4%) were < 20 years of age. Seventy-eight of the 893 cases (7.1%) were admitted to the ICU. The age distribution of the ICU cases is as follows: 47 (60.3%) were in adults ≥ 65 years of age, 22 (28.2%) were in adults 45-64 years of age, and 9 (11.5%) were in adults 20-44 years of age. Of the 78 ICU admissions, 21 (26.9%) had at least one co-morbidity, 2 (2.6%) had no co-morbidities, and 55 (70.5%) had no information to date. A total of 40 deaths have been reported, 3 (7.5%) with influenza A(H3N2), 36 (90.0%) with influenza A(untsubtyped), and one with influenza untyped. Thirty-four of the 40 deaths (85.0%) were in adults ≥ 65 years of age, five (12.5%) were adults 45-64 years of age, and one (2.5%) was 20-44 years of age. Twelve deaths occurred in individuals who had at least one co-morbidity. Detailed clinical information on co-morbidities is not known for the remaining 28 cases.

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada.

Provincial/Territorial Influenza Hospitalizations and Deaths (Aggregate Surveillance System)

The number of laboratory-confirmed influenza-associated hospitalizations continued to decline in week 05 (275 compared to 472 in week 04*). The majority of cases were influenza A (96.7%), predominantly A(H3). Almost 60% of cases were ≥ 65 years of age (159/275). Of the 124 cases with available data, 18 (14.5%) were admitted to the ICU.

Twenty-one deaths were reported in week 05: 17 were adults ≥ 65 years of age; three were adults 45-64 years of age and one was a child 0-4 years of age. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

To date this season, 3,010 influenza-associated hospitalizations have been reported. Of these, 97.6% have been influenza A, predominately A(H3); and 2.4% have been influenza B. Age information was available for 3,008 cases. The age distribution is as follows: 57.9% ≥ 65 years; 16.3% 45-64 years; 8.5% 20-44 years; 1.0% 15-19; 3.0% 5-14 years and 13.3% 0-4 years of age. Among the 755 cases with available data, there have been 10 hospitalisations for which admission to ICU was required; the highest proportions were among adults ≥ 65 years of age (36.7%), and between 45 and 64 years of age (34.9%). To date this season, 203 deaths have been reported: 169 were persons ≥ 65 years of age, 23 were adults 45-64 years; 6 were adults 20-44 years and 5 were children 0-4 years of age. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

Note*: The number of new influenza-associated hospitalizations and deaths reported by the Aggregate Surveillance System each week may be overestimated, as it may include retrospective updates to data from Ontario for previous weeks. These data may also include cases reported by the IMPACT and PCIRN networks. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not reported in Ontario.

International Influenza Updates

WHO: The most recent WHO report (1 February 2013) summarizes global influenza surveillance data from week 03 (January 13-19, 2013). The US has reported a higher proportion of influenza B than in Canada this season, at 19.9%. In week 03, the US reported a spike in the proportion of deaths due to pneumonia- and influenza, reaching levels exceeding the previous maximum observed in 2007-08. Hospitalization rates were highest among persons over 65 years of age at 97.7/100,000 and exceeded year-end rates for the previous three seasons.

In Europe, countries in the western part of the region reported more influenza B earlier in the season, with countries in eastern Europe reporting more influenza A. The proportion of A(H1N1)pdm09 in the region has increased over the course of the season, and it is now the predominant strain in the region.

In North Africa and the Middle East, influenza activity declined overall, but some countries reported increases in week 03. The predominant strain also varied by country, however, A(H1N1)pdm09 was the most commonly detected in the region as a whole.

Influenza activity increased in countries in the temperate region of Asia, with influenza A predominant and approximately equal proportions of A(H1N1)pdm09 and A(H3N2). In tropical regions of Asia, there was continued low-level circulation of all types/subtypes of influenza.

In Central America and the Caribbean, influenza activity declined slowly from the peak of influenza activity in late summer. In week 03, influenza A(H3N2) and B were predominant, except in Cuba where A(H1N1)pdm09 was most common. In South America, little influenza activity was reported, except in Paraguay and Bolivia.

[World Health Organization influenza update](#)

United States: During week 05, influenza activity remained high in the United States, but decreased in most areas. Thirty-eight states reported widespread influenza activity, 9 states reported regional influenza activity, and the District of Columbia, Puerto Rico and 2 states reported local activity. The national percentage of outpatient visits for ILI was 3.6% which is above the national baseline of 2.2%. All 10 regions reported ILI above region-specific baseline levels, and 19 states and New York City experienced high ILI activity in week 05. During week 05, the percentage of deaths due to pneumonia and influenza was 9.0%, which is above the epidemic threshold of 7.4% and higher than the peak observed during the previous four influenza seasons. The proportion of tests positive for influenza viruses declined to 23.3% in week 05. Of the positive influenza detections, 73.7% were positive for influenza A viruses. Of the 1,100 influenza A viruses for which subtype information was available, 93.3% were A(H3) and 6.7% were A(H1N1)pdm09. Since October 1, 2012, the CDC has antigenically characterized 972 influenza viruses. Among influenza A viruses, 608 were A/Victoria/361/2011-like, two (0.3%) of which showed reduced titers; and 66 were A/California/7/2009-like. Among influenza B viruses, 211 (70.8%) were B/Wisconsin/01/2010-like belong to the Yamagata lineage of viruses; and 87 (29.2%) to the B/Victoria lineage. One oseltamivir-resistant A(H1N1)pdm09 virus has been reported to date this season. Among the 8,293 influenza-associated hospitalizations reported to date this season, 86.8% were associated with influenza A of which 97.5% were A(H3N2), and more than 50% were among adults ≥ 65 years. Fifty-nine influenza-associated paediatric deaths have been reported to date this season, 34 with influenza A and 25 with influenza B.

[Centers for Disease Control and Prevention seasonal influenza report](#)

Europe: Consultation rates for ILI and ARI continue to increase across the region, with 18/20 countries reporting rates above their national threshold levels. The proportion of specimens from sentinel clinics positive for influenza increased to the highest level this season, at 52%. There is continued co-circulation of A(H1N1)pdm09, A(H3N2) and influenza B, but A(H1N1)pdm09 is the predominant strain, accounting for 78% of subtyped influenza A in week 05. Since week 40, 30,119 specimens of influenza viruses have been typed: 70% were influenza A and 30% were influenza B. Among the 13,107 influenza A viruses for which subtype information was available, 71% were A(H1N1)pdm09 and 29% were A(H3N2). Influenza A is predominant in northern, eastern and central regions while influenza B is reported as predominant in southern and western regions, and the UK (Northern Ireland). Between these regions, there is co-circulation of influenza A and B. The number of hospitalizations due to severe acute respiratory illness (SARI) has increased since week 01, with the majority of cases reported in children 0-4 years of age.

EuroFlu weekly electronic bulletin

Human Avian and Swine Influenza Updates

Human Avian Influenza

No new human cases of avian influenza have been reported by the WHO since 1 February 2013.

WHO Influenza at the human-animal interface

Human Swine Influenza

No new human cases of infection with swine influenza viruses or variants were reported in week 05.

Centers for Disease Control and Prevention seasonal influenza report

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2012-2013 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2012-2013 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2012-2013 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and

(2) lab confirmed influenza detection(s) together with

(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region†**

4 = Widespread: (1) evidence of increased ILI* and

(2) lab confirmed influenza detection(s) together with

(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **greater than or equal to 50% of the influenza surveillance region†**

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: <http://www.phac-aspc.gc.ca/fluwatch/index.html>. Ce rapport est disponible dans les deux langues officielles.